

REMARKS

Applicant has canceled claims 1 and 9, amended claims 2, 8, 10, 12 and 15. Applicant respectfully submits that these amendments to the claims are supported by the application as originally filed and do not contain any new matter. Accordingly, the Office Action will be discussed in terms of the claims as amended.

The Examiner has rejected 1-15 under 35 USC 103 as being obvious over Sano in view of Hashimoto et al. or Smith et al., stating that Sano teaches all of Applicant's invention except for a three-dimensional rendering; Hashimoto et al. at col. 11, lines 35-50 and the bottom of col. 12 teach producing full 3D including volume rendering in realtime; Smith et al. at col. 26, lines 49-53 teaches rendering an image of tissue displacement movements in this fashion; and it would have been obvious to one of ordinary skill in the art to modify Sano in view of the teachings of Hashimoto et al. and Smith et al.

In reply thereto, Applicant has carefully reviewed the rejection and particularly Sano and respectfully submits that the present invention is patentably distinct from Sano for the reasons set forth below. In particular, Sano obtains velocity information by Doppler measurement. In contrast thereto, Applicant's invention obtains displacement information from a change in the distance between each site and the reference point over time phases. In addition, in Sano in order to calculate an amount of displacement for each site using Doppler measurement, it is necessary to determine the velocity (magnitude of velocity) and the direction for each site. To determine the velocity and the direction in Sano, ultrasonic waves must be transmitted to each site for a multiple number of times and calculations must be performed using received data obtained from the multiple transmissions. Accordingly, Applicant respectfully submits that in Sano an enormous amount of calculations become necessary for determining the amount of displacement. In contrast thereto, in Applicant's invention, a reference point is identified and an amount of displacement is calculated from a change in the distance between each site and the reference point and as a result, the number of calculations required are substantially reduced when compared to using Doppler measurement such as in Sano.

Still further, Applicant respectfully submits that when using Doppler measurement such as in Sano, velocity in a direction orthogonal to the ultrasonic beam cannot be measured. Accordingly, depending on the movement of each site, it becomes necessary to change the direction of the ultrasonic beam in devices utilizing Doppler measurement such as Sano. In

contrast thereto, in Applicant's invention the amount of displacement can be calculated from a change in the distance from each site to the reference point so long as the site is located within a range in which echo data can be acquired, irregardless of the state of movement of the site.

Applicant has further carefully reviewed Hashimoto et al. and respectfully submits Hashimoto et al. at col. 11, lines 35-50 or the bottom of col. 12 do not disclose substantially that which the Examiner suggests they do. In particular, Applicant respectfully submits that in Hashimoto et al. the rendering is accomplished based upon a videotape and is not in fact in realtime.

Applicant has also reviewed Smith et al. and respectfully submits that the processing described at col. 26, lines 49-53 is processing of a raster scan one slice at a time to produce a 3D image.

In view of the above, therefore, Applicant respectfully submits that one of ordinary skill in the art would not look to Hashimoto et al. or Smith et al. in order to make a combination with Sano to recreate Applicant's invention.

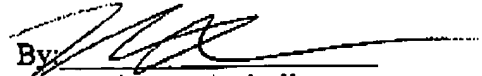
In view of the above, therefore, Applicant respectfully submits that Sano does not teach the elements suggested by the Examiner and the combination therewith with Hashimoto et al. and Smith et al. is not only not Applicant's invention but also would not be suggested to one of ordinary skill in the art. Accordingly, Applicant respectfully submits that claims 2-8 and 10-15 are not obvious over Sano in view of Hashimoto et al. and Smith et al.

In view of the above, therefore, it is respectfully requested that this Amendment be entered, favorably considered and the case passed to issue.

Please charge any additional costs incurred by or in order to implement this Amendment or required by any requests for extensions of time to KODA & ANDROLIA DEPOSIT ACCOUNT NO. 11-1445.

Respectfully submitted,

KODA & ANDROLIA

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